

LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Original) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:
applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;
removing at least a portion of said carrier to form a coating;
patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and
developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film.
2. (Original) The method of claim 1, wherein said pre-patterned film on said substrate comprises a first set of regions of said substrate in said film having a first atomic composition and a second set of regions of said substrate having a second atomic composition that is different from said first composition.
3. (Original) The method of claim 2, wherein said first set of regions includes one or more metallic or conductive elements and wherein said second set of regions includes one or more dielectric materials.
4. (Original) The method of claim 1, wherein said coating is selected from the group consisting of: a chemically amplified and a chemically non-amplified photoresist.
5. (Original) The method of claim 1, wherein said coating is selected from the

group consisting of: a positive tone photoresist, a negative tone photoresist, a positive tone thermal resist, and a negative tone thermal resist.

6. (Original) The method of claim 5, wherein said developed patterned resist is further exposed to a dry etch to remove any remaining resist thereby preventing imperfect self-aligned patterning.

7. (Currently amended) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:
applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;
removing at least a portion of said carrier to form a coating;
patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and
developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film

~~The method of claim 1, wherein said mask pattern is used as a lift-off mask.~~

8. (Original) The method of claim 1, wherein said mask pattern is used as an etch mask.

9. (Currently amended) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:
applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;
removing at least a portion of said carrier to form a coating;
patternwise exposing said coating to radiation in conjunction with a blocking

mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and

developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film

~~The method of claim 1~~, wherein said mask pattern is used as sacrificial polish stop layer.

10. (Currently amended) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:

applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;

removing at least a portion of said carrier to form a coating;

patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and

developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film

~~The method of claim 1~~, wherein said patterned substrate has two or more adjacent regions of different reflectivity.

11. (Currently amended) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:

applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;

removing at least a portion of said carrier to form a coating;

patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and

developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film

~~The method of claim 4~~, wherein said exposure wavelength is less than 2 microns.

12. (Currently amended) A method of forming a self-aligned patterned layer on a substrate having thereon a pre-patterned film, comprising the steps of:

applying onto said substrate having thereon a pre-patterned film a solution of a masking material in a carrier;

removing at least a portion of said carrier to form a coating;

patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and

developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation to produce said self-aligned patterned layer on said pre-patterned film

~~The method of claim 4~~, wherein two distinct wavelengths to which said coating is sensitive are used to generate the difference in delivered dose so that each wavelength is designed to isolate differences in reflectivity.

13. (Original) The method of claim 1, wherein said radiation is selected from the group consisting of: an actinic radiation, an electron beam, an ion beam and a combination thereof.

14. (Original) The method of claim 1, wherein said actinic radiation is selected from the group consisting of: ultraviolet (UV) radiation, visible radiation and infrared (IR) radiation.

15. (Original) The method of claim 1, wherein said pre-patterned film has a nanocolumnar structure.

16. (Original) The method of claim 1, wherein said pre-patterned film is a combination of a nanocolumnar and non-nanocolumnar structured film.

17. through 32. (Cancelled)

33. (Original) A structure prepared by a method comprising the steps of:
applying onto a substrate having thereon a pre-patterned film a solution of a masking material in a carrier;
removing at least a portion of said carrier to form a coating;
patternwise exposing said coating to radiation in conjunction with a blocking mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and
developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation and said blocking mask to produce said self-aligned patterned layer on said pre-patterned film.

34. (Original) A microelectronic device having a structure prepared by a method comprising the steps of:
applying onto a substrate of said microelectronic device having thereon a pre-patterned film a solution of a masking material in a carrier;
removing at least a portion of said carrier to form a coating;
patternwise exposing said coating to radiation in conjunction with a blocking

mask so that said radiation is transmitted through said coating and is reflected back to said coating to produce a patterned layer having exposed and unexposed regions with a given spatial intensity distribution; and

developing said exposed and unexposed regions to reveal a mask pattern on said coating commensurate with said spatial intensity distribution generated during exposure to radiation;

wherein said pre-patterned film is a self aligned patterned layer.